Capulin Volcano National Monument

inventory reveals insect range extensions

By Robert R. Parmenter

Capulin Volcano National Monument in northeastern New Mexico is a 59,000-year-old volcanic cinder cone that rises 1,148 feet (350 m) above the grasslands of the western Great Plains (Sayre et al. 1995). During 1996 and 1997, biologists from the University of New Mexico's Department of Biology conducted a field survey of the monument. This was a search for listed and category (now called candidate) species of plants, mammals, birds, reptiles, amphibians, and invertebrates (Parmenter et al. 2000). The survey was funded in 1995 by ONPS (Operation of the National Park Service) for $12,372.

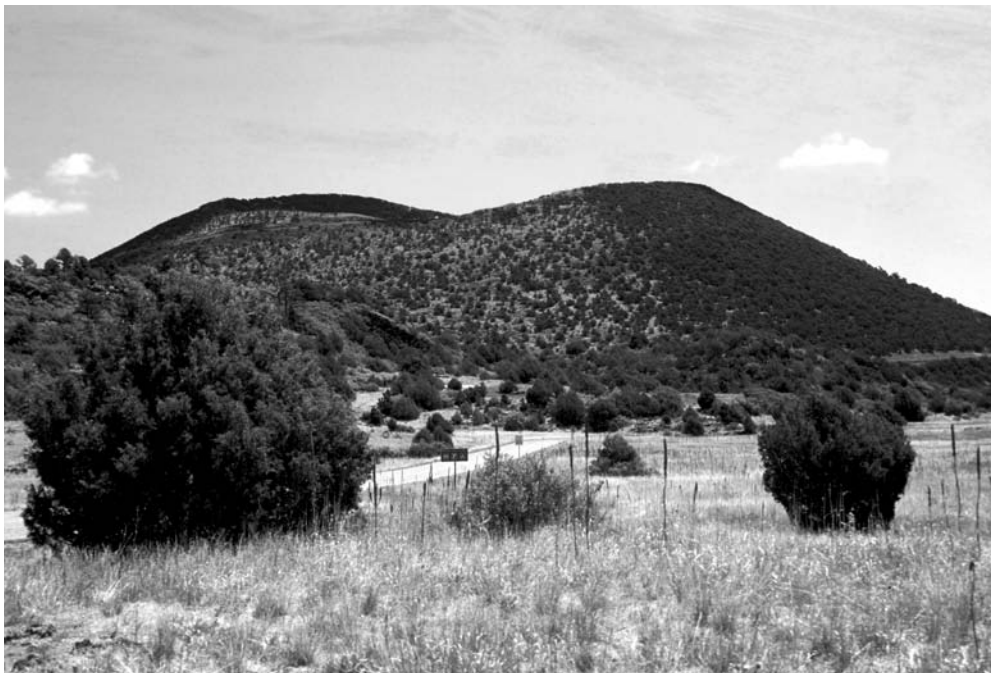

Figure 1. The Capulin Volcano National Monument, a volcanic cinder cone, rises above the grasslands of the western Great Plains. ROBERT R. PARMENTER

The team made visual observations and systematic surveys, conducted livetrapping exercises, and collected arthropods in the spring, summer, and autumn. Based on the results of the field research, they found no listed or category species of plants, vertebrates, or invertebrates residing on the monument. These results were primarily because of (1) the soil types found on the monument (basaltic soils with cinder gravels), which have not been found to support any listed or category plant species in this part of New Mexico; (2) the limited availability of substantial cliff faces for nesting raptors; (3) the lack of natural freshwater sources (springs, streams, ponds); and (4) the relatively small size of the monument. However, different habitats (high cliff formations and limestone outcrops) exist to the west of the monument on private lands, and these may support such listed species as peregrine falcons, and perhaps some listed plants that would normally inhabit limestone outcrops. Whether associated with neighboring lands or not, certain wideranging animal species (notably raptors) occasionally pass through the monument during migration or while foraging.

In the case of invertebrates, while no currently listed or category species were observed, investigators noted some range extensions and a rarely observed subspecies of butterfly. The field sampling included the use of pitfall traps, sweep-netting, and hand collecting in the three main habitat types found in the monument: grassland, pinyon-juniper woodland, and cinder cone/lava escarpments.

Beetles, grasshoppers, and crickets comprised the most commonly sampled arthropods at Capulin Volcano National Monument. Thus far, 48 species of beetles,

44 species of grasshoppers, and 8 species of crickets from the monument have been identified by Richard Fagerlund, an entomologist at the University of New Mexico. Although they were not collected in abundance, four of the beetle species are new records for New Mexico, and their known ranges suggest that the region of Capulin Volcano National Monument may be a transitional area for a variety of arthropod taxa. For example, the soldier beetle, *Belotus abdominalis* LeConte (Cantharidae), was known to occur in Texas; its appearance on the monument represents a range extension of 250 miles (432 km) to the northwest. Similarly, the presence of the hide beetle, *Trox foveicollis* Harold (Trogidae), represents a range extension westward from Arkansas. In contrast, the new record of the ladybird beetle, *Hyperaspis quadrivittata* LeConte (Coccinellidae), indicates a southern range extension from Wyoming, while the presence of the minute fungus beetle, *Sericoderus lateralis* (Gyllenhal) (Corylophidae), represents a southeasterly range extension from the Pacific Northwest. None of the grasshoppers or crickets represented new state records or unusual occurrences for the region. The four new state records for beetles were not surprising because few surveys for arthropods have been conducted in this part of the state. These findings suggest that there may also be undescribed species of arthropods in the Capulin Volcano region and at Capulin Volcano National Monument.

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Figure 2. Inventory scientist Dave Lightfoot and an assistant of the University of New Mexico install a pitfall trap on the volcano slope.
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Based on known distribution, the only known invertebrate that may be considered regionally rare at the park is the Capulin subspecies of the Alberta Arctic butterfly (*Oeneis alberta capulinensis* Brown). This butterfly is known only from the crater rim of Capulin Volcano National Monument, along with two other areas in northeastern New Mexico and one other location in southern Colorado (New Mexico State Parks Division, S. Cary, personal communication, 9 July 2002). However, the subspecies is neither state nor federally listed, nor is it a category species. Investigators observed several individuals of this butterfly during each spring and early summer field trip to the north rim of the crater. Consequently, even though this butterfly can be considered rare in the region, it appears to be common in the park.

The larvae of this butterfly species are known to feed on grasses, particularly bunch grasses in the genus *Festuca*. The host plant of the Capulin subspecies is not known, but it is probably a native species of bunch grass such as Arizona fescue *(Festuca arizonica)*, or *Poa* sp. The butterfly species occurs as local populations on isolated mountains in the southern Rocky Mountains region. The limited distribution of the Capulin Alberta Arctic may mean that it is genetically distinct from other populations. Future research may determine that the Capulin Alberta Arctic butterfly is a genetically significant population of a species with a wider geographic distribution. Consequently, park management could make monitoring this butterfly a high priority in order to facilitate the protection of this subspecies. At the time of the study, the grass habitats on the Capulin volcano appeared to be well preserved and protected from human impacts.

References

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